

**REMARKS**

Claims 1-3, 5-25, and 27-45 are pending. Claims 1-3, 5-18, 21, 23-25, 27-39, 42, 44, and 45 stand rejected under 35 U.S.C. § 103(a). Claims 1, 3, and 5-43 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 22 and 27, the specification, and the drawings are objected to. Claim 20 is believed to be allowable and claims 19, 22, 40, 41, and 43 are believed to recite allowable subject matter, *mutatis mutandis*.

Claims 1, 2, 9, 23, 24, 27, 31, 44, and 45 have been amended and claims 19 and 40 have been canceled without prejudice as shown in the Status of the Claims section, *supra*. Accordingly, after entry of this Amendment, the pending claims are claims 1-3, 5-18, 20-25, and 27-39 and 41-45. No new matter has been added.

**SECTION 112, SECOND PARAGRAPH REJECTIONS**

**Claims 1, 3, and 5-22**

The Examiner has rejected claims 1, 3, and 5-22 under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter of the invention. More particularly, the Examiner deems use of the verb "generate" in claim 1 unclear. The terminology has been made more structured. Support for the amendment is found in WO 2004/083820 on page 3, lines 3-5. Accordingly, the grounds for rejection are now believed to be moot.

Claims 9, 17-19, and 22

The Examiner has rejected claims 9, 17-19, and 22 under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter of the invention. More particularly, the Examiner has requested clarification as to the "means-plus-function" structure corresponding to claim terms.

According to the Specification, "the computer 34 will typically cause the tunable laser 1 to scan through a set of wavelengths." International Application Publication Number WO 2004/008558, page 58, lines 1-3. Accordingly, "means for sweeping the wavelength" in claim 9 may correspond to the computer 34. Furthermore, a controller card 36, e.g., a GPIB card, "applies control signals to the tunable laser 1." Id., page 25, lines 25-26. Hence a controller card, also constitutes a "means for sweeping the wavelength". Those of ordinary skill in the art can appreciate that a controller card constitutes a driver program, an application, an algorithm and the like that have been embodied on a computer-readable medium, i.e. the card, and that are executable on a processor.

In claim 17, a "means for causing said radiation to emit at discrete wavelengths" is recited. Such means could also include the computer and the computer card mentioned above with respect to the "means for sweeping the wavelength" of claim 9. Claim 17 differs from claim 9 in that means is an element of the source of radiation, e.g., the laser.

Structure corresponding to "means for dynamically varying spacing" and "means for varying spacing" recited in claims 19 (currently recited in claims 1 and 2) and 22, respectively, are clearly disclosed in the Specification. For example, the

Specification discusses adjusters 23 and 24 for adjusting the first stage 19 of the detection system and a micrometer 25 for adjusting the second stage 21. See, e.g., Id., page 6, lines 8-11. Adjustments, i.e., mirror alignment, by hand, which is to say non-dynamic adjustments, are discussed beginning at line 4 on page 8 of the Specification.

As for "means for dynamically varying spacing", a "piezo/computer control" that does not "disturb the system like the hand of a human operator" is described beginning at line 9 on page 9. The Specification provides that the control "keeps mirrors parallel throughout the operation of the biosensor," which is to say, to dynamically vary spacing. Id., page 9, lines 13-14. More particularly, the "piezo/computer control" includes a computer 34 with a controller card 36 that "operates through a piezoelectric controller 37 to control piezoelectric actuators on the adjusters 23 and 24." Id., page 6, lines 27-28. Hence, structure for the "dynamically varying" means can include a computer, one or more piezoelectric actuators, and a controller card. The "varying" means would not include a computer, a controller or a controller card. Those of ordinary skill in the art can appreciate that a controller card constitutes a driver program, an application, an algorithm and the like that have been embodied on a computer-readable medium, i.e. the card, and that are executable on a processor.

The Examiner's rejection for claim 18 vis-à-vis the "means for controlling a temperature" appears to have been adequately addressed in the previous response and now is believed to be in error. Withdrawal thereof is respectfully requested.

Claims 9 and 31

The Examiner alleges that the recitation "sweeping the wavelength" is unclear. Claims 9 and 31 have been amended. Support for the amendment is found on page 8, lines 1-3 of International Application Publication Number WO 2004/008558. Accordingly, the grounds for rejection are now believed to be moot. Withdrawal thereof is respectfully requested.

Claims 23-43

The Examiner alleges that the detecting steps recited in independent claims 23 and 24 are unclear. Claims 25-43, which depend from independent claim 23 are understood to be rejected because they depend from claim 23.

Claims 23 and 24 have been amended. Accordingly, the grounds for rejection are now believed to be moot. Withdrawal thereof is respectfully requested.

OBJECTIONS TO THE CLAIMS

Claims 22 and 27 are objected to under 37 CFR § 1.75(c) as being in improper dependent form. More specifically, the Examiner alleges that the claims do not further limit the subject matter of the claim(s) from which they depend.

Claim 22

Claim 22 is objected to under 37 CFR § 1.75(c) as being substantially duplicative of claim 19 (now canceled). The Applicants respectfully disagree. Claim 19 recites dynamically varying the spacing between "first and second surfaces", e.g.,

using the "piezo/computer control". In contrast, claim 22 recites varying the spacing, which can be done manually or dynamically. The difference is addressed above in the discussions about claims 19 and 22. Notwithstanding, the Applicants are prepared to cancel the claim to expedite allowance.

#### Claim 27

Claim 27 has been amended. Accordingly, the grounds for rejection are now believed to be moot.

#### OBJECTIONS TO THE DRAWINGS

Further objections to the drawings have been raised. More specifically, in his response to argument section, the Examiner correctly notes that FIG. 4 depicts a single cell (80) having a capturing material (90) disposed on one reflective surface (15) that is opposed by another reflective surface (14). Referring to the Specification between line 15 on page 9 and line 2 on page 10, clearly an array of plural cells (80) is discussed and shown in FIG. 2. FIG. 4 "illustrates diagrammatically the operation of a **single cell** 80" from the array of cells. Id., page 9, lines 28-29 (Emphasis added).

In short, each "single cell" 80 in the array of cells shown in FIG. 2 includes a capturing material (90) disposed on a reflective surface (15) that is opposed by another reflective surface (14). Moreover, each "single cell" includes a resonant cavity (16) portion, which is the space between the first reflective surface (14) and the capturing material (90). If each

"single cell" has a resonant cavity (16) portion, then there are "a plurality of resonant cavity portions" within the array. Withdrawal of the objection is therefore respectfully requested.

With respect to claims 10 and 11, referring to FIG. 1, lens 7 operates to condense the beam to a focal point (9) and lens 10 operates to expand the beam from the focal point (9). Focusing lens (31) also is shown to condense a beam (30). Accordingly, multiple instances of beam condensers and a beam expander are provided. Withdrawal of the grounds for objection to the drawings is respectfully requested.

With respect to claim 20, the claim recites a detection system that "includes a photodetector array integral with a support for one of said reflective surfaces which is not supporting a capturing material." Referring to FIG. 11, there are shown a photodetector array (140) that is integrated with a substrate (142), i.e., a "support", which, according to the Specification, is on the exit mirror (15), i.e., "reflective surface". See, e.g., Id., page 16, lines 17-19. An array of capturing materials (160) is disposed on an opposing substrate (150) on which light is incident, i.e., the entry mirror (14). Thus, the Applicants maintain that the figures adequately portray the language in claim 20. Withdrawal of the grounds for objection to the drawings is respectfully requested.

With respect to claim 44, the claim has been amended so that the -- zone -- now refers to the cavity 16 space which is clearly shown in FIG. 1. Accordingly, withdrawal of the grounds for objection to the drawings is respectfully requested.

SECTION 103(a) REJECTIONS

Claims 1-7, 10-16, 21, 23-29, 32-37, 42, 44, and 45 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Number 5,982,534 to Pinkel, et al ("Pinkel") in view of U.S. Patent Application Number 2002/0068018 to Pepper ("Pepper"); claims 8, 9, 17, 30, 31, and 38 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pinkel and Pepper, further in view of U.S. Patent Number 4,917,462 to Lewis ("Lewis"); and claims 18 and 39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pinkel and Pepper, further in view of U.S. Patent Number 5,851,488 to Saul, et al. ("Saul").

The Examiner has confirmed during a telephone conversation with the Applicants that the subject matter in claims 19 and 40, which recite "dynamically varying spacing" between the reflective surfaces, would be allowable. Accordingly, in order to expedite allowance of the present invention, the Applicants have amended independent claims 1, 2, 23, 24, 44, and 45 to recite the allowable subject matter. Accordingly, the grounds for rejection as to all claims (independent and dependent) are believed to be moot. Withdrawal of the grounds for rejection is respectfully requested.

Application No. 10/549,991  
Filed: September 19, 2005  
TC Art Unit: 1797  
Confirmation No.: 1023

The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

M. SELIM UNLU ET AL.

Dated: September 11, 2009

By: Charles L. Gagnebin iii/  
Charles L. Gagnebin III  
Registration No. 25,467  
Attorney for Applicant(s)

WEINGARTEN, SCHURGIN,  
GAGNEBIN & LEBOVICI LLP  
Ten Post Office Square  
Boston, MA 02109  
Telephone: (617) 542-2290  
Telecopier: (617) 451-0313

CLG/dkh/379932.1